

IOS IPv4 ACCESS LISTS

Standard ACL Syntax

```
! Legacy syntax
access-list <number> {permit | deny} <source> [log]

! Modern syntax
ip access-list standard {<number> | <name>}
[<sequence>] {permit | deny} <source> [log]
```

Actions

permit	Allow matched packets
deny	Deny matched packets
remark	Record a configuration comment
evaluate	Evaluate a reflexive ACL

Extended ACL Syntax

```
! Legacy syntax
access-list <number> {permit | deny} <protocol> <source> [<ports>] <destination> [<ports>] [<options>]

! Modern syntax
ip access-list extended {<number> | <name>}
[<sequence>] {permit | deny} <protocol> <source> [<ports>] <destination> [<ports>] [<options>]
```

ACL Numbers

1-99	IP standard
1300-1999	
100-199	IP extended
2000-2699	
200-299	Protocol
300-399	DECnet
400-499	XNS
500-599	Extended XNS
600-699	Appletalk
700-799	Ethernet MAC
800-899	IPX standard
900-999	IPX extended
1000-1099	IPX SAP
1100-1199	MAC extended
1200-1299	IPX summary

TCP Options

ack	Match ACK flag
fin	Match FIN flag
psh	Match PSH flag
rst	Match RST flag
syn	Match SYN flag
urg	Match URG flag

established Match packets in an established session

Logging Options

log	Log ACL entry matches
log-input	Log matches including ingress interface and source MAC address

Source/Destination Definitions

any	Any address
host <address>	A single address
<network> <mask>	Any address matched by the wildcard mask

IP Options

dscp <DSCP>	Match the specified IP DSCP
fragments	Check non-initial fragments
option <option>	Match the specified IP option
precedence {0-7}	Match the specified IP precedence

ttl <count> Match the specified IP time to live (TTL)

TCP/UDP Port Definitions

eq <port>	Equal to	neq <port>	Not equal to
lt <port>	Less than	gt <port>	Greater than
range <port> <port>			Matches a range of port numbers

Miscellaneous Options

reflect <name>	Create a reflexive ACL entry
time-range <name>	Enable rule only during the given time range

Applying ACLs to Restrict Traffic

```
interface FastEthernet0/0
 ip access-group {<number> | <name>} {in | out}
```

Troubleshooting

show access-lists [<number> <name>]
show ip access-lists [<number> <name>]
show ip access-lists interface <interface>
show ip access-lists dynamic
show ip interface [<interface>]
show time-range [<name>]